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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/901,487	07/09/2001	Ho Kyoum Kim	2598/OJ593	5179
7278	7590	07/25/2005		EXAMINER
DARBY & DARBY P.C. P. O. BOX 5257 NEW YORK, NY 10150-5257				HUFFMAN, JULIAN D
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 07/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/901,487	KIM ET AL.	
	Examiner	Art Unit	
	Julian D. Huffman	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 23 May 2005.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1,2,4-15 and 21-25 is/are pending in the application.  
 4a) Of the above claim(s) 6-15 and 22-25 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1,2,4,5 and 21 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 15 September 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 23 May 2005 has been entered.

### ***Election/Restrictions***

2. Claims 6-15 and 22-25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 15 September 2004.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitayama (JP 01-095553) in view of and Masaaki et al. (JP 3-11757).

Kitayama discloses:

With regards to claim 1, an image sensor module (fig. F), comprising:  
a PCB (1, package is a PCB since it contains electrical wiring film 6) for  
transferring and transmitting electric signals and having a circuit (wiring film 6 transfers  
and transmits electrical signals to lead 7);

an image chip (sensing device 4) seated in a hollow area formed in a  
predetermined portion of the PCB (chip 4 is seated in a hollow recess in the PCB 1);  
a transparent medium (8) having a printed circuit of a predetermined pattern on a  
first surface thereof (electrodes 5 connect image chip to medium plate and then to  
package 1);

a first bump (10a) and a second bump (10b) formed on the first surface of the  
transparent medium, the first bump being electrically connected to a chip pattern (5) on  
the image chip seated on the PCB, the second bump being electrically connected to the  
circuit of the PCB (second bump 10b is connected to package/PCB through wiring film  
6) and situated between the PCB and the printed circuit of the transparent medium  
(shown in fig. F); and

adhesive molded to the predetermined portion of a rear surface of the PCB, on  
which the image chip is mounted (adhesive 3 used to secure image chip to  
package/PCB).

With regards to claim 4, the anisotropic conductive films 10 which form the bumps have high conductivity.

With regards to claim 5, this limitation is directed towards the method of manufacturing the sensor and is not seen to patentably limit the structure of the apparatus claims.

Kitayama discloses fixing the solid-state image sensing device/image chip to the PCB/package using adhesive 3.

Kitayama does not disclose an epoxy resin molded to the PCB on which the image chip is mounted.

Masaaki et al. disclose fixing a solid image sensing device (3) to a package (1) through an epoxy resin (2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to fix the solid-state imaging device to the PCB using epoxy resin, as taught by Masaaki et al. into Kitayama, for the purpose of providing a semiconductor device with improved humidity resistance and reliability (abstract, Masaaki et al.)

**5.** Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitayama in view of Masaaki et al. as applied to claims 1, 4 and 5 above, and further in view of Takashi (JP 01-248542).

Kitayama as modified is not seen to expressly disclose a glass substrate.

Takashi discloses a glass (4) for transmission of light to a photosensor chip (1, abstract).

It would have been obvious to one having ordinary skill in the art at the time of the invention to substitute the glass of Takashi in place of the transparent member of Kitayama as modified by Masaaki for the purpose of providing a light transmission member which prevents output from being saturated due to incidence of strong light (abstract, Takashi).

6. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitayama in view of Masaaki as applied to claims 1,4 and 5 above, and further in view of Wetzel (U.S. 6,268,231).

Kitayama as modified does not disclose a flexible PCB.

Wetzel teaches a CCD package that uses a flexible PCB (fig. 1a, element 18).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the PCB/package of Kitayama to be flexible, as taught by Wetzel into Kitayama, for the purpose of providing a PCB/package with facilitated assembly and alignment (column 4, lines 40-43) and smaller size (column 4, lines 43-45).

***Response to Arguments***

7. Applicant's argument that element 7 of Kitayama is not a PCB is persuasive.

Element 7 is a conductive lead. However, the prior art teaches the claimed invention as outlined above.

Applicant's argument that Kitayama does not provide the advantages of a more miniaturized or compact sensor is noted. However, this argument is not persuasive since the claims do not set forth structure which is not disclosed by the prior art.

Applicant's arguments that a *prima facie* case of obviousness has not been established and that there is no motivation in the references for the combination of Kitayama and Miyazaki are noted. Though these arguments are not persuasive, the arguments are moot in view of a new grounds of rejection.

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian D. Huffman whose telephone number is (571) 272-2147. The examiner can normally be reached on 9:30a.m.-6:00p.m. Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JH  
20 July 2005

K. FEGGINS  
PRIMARY EXAMINER  
7/05